

**Amendments to the Claims:**

Please amend claims 7, 36, 41, 51, 126, 139, and 142 as indicated below.

Please add new claims 145-154 as provided below.

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-6 (Canceled)

7. (Currently Amended) A method of detecting expression of genes in the skin, comprising:

a) applying an adhesive tape to a target area of the skin in a manner sufficient to isolate an epidermal sample adhering to the adhesive tape, wherein the epidermal sample comprises nucleic acid molecules, ~~wherein the tape comprises a rubber adhesive, and wherein the tape is pliable;~~ and

b) detecting expression of the nucleic acid molecules in the epidermal sample by detecting a difference in a  $[[ - ] ] \Delta Ct$  value, wherein a  $[[ - ] ] \Delta Ct$  value is a difference in the number of amplification cycles required to reach a threshold signal level between a target nucleic acid molecule and a control nucleic acid molecule.

Claims 8-17 (Canceled)

18. (Previously Presented) A method for detecting a response of a subject to treatment for dermatitis, comprising:

a) treating the subject for dermatitis;

b) applying an adhesive tape to irritated skin of the subject in a manner sufficient to isolate an epidermal sample, wherein the epidermal sample comprises nucleic acid molecules; and

c) detecting expression of a keratin 10, keratin 16, or keratin 17 gene product, wherein an increase in expression is indicative of response of the subject to

treatment for dermatitis, and wherein the method is performed prior to treatment and after treatment.

19. (Previously Presented) A method for detecting a response of a subject to treatment for dermatitis, comprising:

- a) treating the subject for dermatitis;
- b) applying an adhesive tape to irritated skin of the subject in a manner sufficient to isolate an epidermal sample, wherein the epidermal sample comprises nucleic acid molecules; and
- c) detecting expression of a keratin 16 or keratin 17 gene product, wherein an increase in expression is indicative of response of the subject to treatment for dermatitis, and wherein the method is performed prior to treatment and after treatment.

Claims 20-35 (Canceled)

36. (Currently Amended) A non-invasive method for isolating or detecting nucleic acid molecules from an epidermal sample of a psoriatic lesion of a human subject, comprising:

- a) applying an adhesive tape to the psoriatic lesion of the subject in a manner sufficient to isolate an epidermal sample adhering to the adhesive tape, wherein the epidermal sample comprises nucleic acid molecules;
- b) isolating or detecting the nucleic acid molecule in the epidermal sample; and
- c) detecting expression of the nucleic acid molecule by detecting a difference in a  $[[ - ] ] \Delta Ct$  value before and after treatment, wherein a  $[[ - ] ] \Delta Ct$  value is a difference in the number of amplification cycles required to reach a threshold signal level between the nucleic acid molecule and a control nucleic acid molecule.

Claims 37-40 (Canceled)

41. (Currently Amended) A method for characterizing psoriasis in a subject, comprising:

- a) applying an adhesive tape to a lesion suspected of being a psoriatic lesion on the skin of the subject in a manner sufficient to isolate an epidermal sample adhering to the adhesive tape, wherein the epidermal sample comprises a target nucleic acid molecule; and
- b) detecting the target nucleic acid molecule, wherein the target nucleic acid is different in at least some subjects with psoriasis; and
- c) determining a  $[[ - ] ] \Delta C_t$  value, wherein a  $[[ - ] ] \Delta C_t$  value is a difference in the number of amplification cycles required to reach a threshold signal level between a target nucleic acid molecule and a control nucleic acid molecule.

Claims 42-50 (Canceled)

51. (Currently Amended) A method for diagnosing psoriasis in a human subject, comprising:

- a) applying an adhesive tape to a lesion suspected of being a psoriatic lesion on the skin of the subject in a manner sufficient to isolate an epidermal sample adhering to the adhesive tape, wherein the epidermal sample comprises a target nucleic acid molecule;
- b) detecting the target nucleic acid molecule; and
- c) comparing expression of the target nucleic acid molecule with expression of a control nucleic acid molecule in the same experiment using the same sample volumes and probes, wherein altered expression of the target nucleic acid molecule as compared with expression of the control nucleic acid molecule is detected by detecting a difference in a  $[[ - ] ] \Delta C_t$  value, wherein a  $[[ - ] ] \Delta C_t$  value is a difference in the number of amplification cycles required to reach a threshold signal level between the target nucleic acid molecule and a control nucleic acid molecule, and wherein altered expression is indicative of psoriasis, thereby diagnosing psoriasis of the subject.

Claims 52-119 (Canceled)

120. (Previously Presented) The method of claim 7, wherein the tape comprises a rubber adhesive on a polyurethane film.

121. (Previously Presented) The method of claim 7, wherein about one to ten adhesive tapes are applied and removed from the skin.

122. (Previously Presented) The method of claim 7, wherein about one to eight adhesive tapes are applied and removed from the skin.

123. (Previously Presented) The method of claim 7, wherein about one to five adhesive tapes are applied and removed from the skin.

124. (Previously Presented) The method of claim 7, wherein the nucleic acid molecules are applied to a microarray to detect the nucleic acid molecules.

125. (Previously Presented) The method of claim 36, wherein the nucleic acid encodes for  $\text{TNF}\alpha$ ,  $\text{IFN}\gamma$ , CD2, IL-12B, Krt-16 and IL-23A.

126. (Currently Amended) The method of claim 125, wherein the nucleic acid encodes a protein selected from CD2, ~~TNFI~~  $\text{TNF}\alpha$ , and  $\text{IFN}\gamma$ .

127. (Previously Presented) The method of claim 36, wherein between one and ten adhesive tapes are applied to the skin and removed from the skin.

128. (Previously Presented) The method of claim 36, wherein between one and eight adhesive tapes are applied to the skin and removed from the skin.

129. (Previously Presented) The method of claim 36, wherein between about one and four adhesive tapes are applied to the skin and removed from the skin.

130. (Previously Presented) The method of claim 36, wherein the method further comprises taking a biopsy of the psoriatic lesion.

131. (Previously Presented) The method of claim 130, wherein a nucleic acid sample is obtained from the biopsy, and the nucleic acid from the tape sample and the nucleic acid from the biopsy are analyzed.

132. (Previously Presented) The method of claim 36, wherein the adhesive tape comprises a rubber adhesive.

133. (Previously Presented) The method of claim 36, further comprising obtaining a nucleic acid sample from uninvolved epidermal tissue of the human subject.

134. (Previously Presented) The method of claim 133, wherein the nucleic acid sample is obtained by taking a biopsy of the uninvolved skin.

135. (Previously Presented) The method of claim 133, wherein the nucleic acid from uninvolved epidermal tissue is obtained by:

- a) applying an adhesive tape to skin of the subject in a manner sufficient to isolate an epidermal sample adhering to the adhesive tape, wherein the epidermal sample comprises nucleic acid and wherein the skin is unaffected by a disease to be tested; and
- b) isolating or detecting the nucleic acid from the epidermal sample of the unaffected skin.

136. (Previously Presented) The method of claim 133, wherein the uninvolved skin is from the upper arm or the upper back.

137. (Previously Presented) The method of claim 36, wherein the nucleic acid is deoxyribonucleic acid (DNA).

138. (Previously Presented) The method of claim 36, wherein the nucleic acid is ribonucleic acid (RNA).

139. (Currently Amended) The method of claim 41, wherein the target nucleic acid molecule encodes a protein selected from CD2, ~~TNFI~~ TNF $\alpha$ , or IFN $\gamma$ .

140. (Previously Presented) The method of claim 51, wherein the target nucleic acid molecule encodes a protein selected from TNF $\alpha$ , IFN $\gamma$ , CD2, IL-12B, Krt-16 and IL-23A.

141. (Previously Presented) The method of claim 51, wherein two or more target nucleic acid molecules are detected.

142. (Currently Amended) The method of claim 141, wherein the two or more target nucleic acid molecules encode two or more proteins selected from CD2, ~~TNFI~~ TNF $\alpha$ , or IFN $\gamma$ .

143. (Previously Presented) The method of claim 51, wherein a biopsy is taken at the site of the skin.

144. (Previously Presented) The method of claim 143, wherein a nucleic acid sample is obtained from the biopsy.

145. (New) A non-invasive method for identifying a predictive skin marker for response to treatment for a disease or pathological state, comprising:

- a) applying an adhesive tape to the skin of a subject afflicted with the disease or pathological state at a first time point, in a manner sufficient to isolate an epidermal sample comprising nucleic acid molecules;
- b) treating the subject for the disease or pathological state;
- d) determining whether the disease or pathological state has responded to the treatment; and
- e) determining whether expression of a nucleic acid molecule in the epidermal sample is predictive of response to treatment, thereby identifying a skin marker for response to treatment.

146. (New) The method of claim 94, wherein the disease or pathological state is psoriasis.

147. (New) The method of claim 95, wherein the treatment is Etanercept, Clobetasol, Alefacept, or narrow band ultraviolet-B light.

148. (New) A non-invasive method for predicting response to treatment for a disease or pathological state, comprising:

- a) applying an adhesive tape to the skin of a subject afflicted with the disease or pathological state in a manner sufficient to isolate an epidermal sample comprising nucleic acid molecules;
- b) detecting a target nucleic acid molecule in the epidermal sample, wherein expression of the target nucleic acid molecule is indicative of a response to treatment, thereby predicting response to treatment for the disease or pathological state.

149. (New) The method of claim 97, wherein the disease or pathological state is psoriasis.

150. (New) The method of claim 98, wherein the treatment is Etanercept or narrow band ultraviolet light.

151. (New) A non-invasive method for isolating or detecting a protein from an epidermal sample of a psoriatic lesion of a human subject, comprising:

- a) applying an adhesive tape to the psoriatic lesion of the subject in a manner sufficient to isolate an epidermal sample adhering to the adhesive tape, wherein the epidermal sample comprises cells from the stratum corneum of the subject;
- b) lysing the cells to extract a protein; and
- c) quantifying the protein, thereby isolating or detecting a protein in the epidermal sample.

152. (New) The method of claim 151, wherein the protein is selected TNF $\alpha$ , IFN $\gamma$ , CD2, IL-12B, Krt-16 and IL-23A.

153. (New) A method for diagnosing psoriasis in a human subject, comprising:

- a) applying an adhesive tape to a lesion suspected of being a psoriatic lesion on the skin of the subject in a manner sufficient to isolate an epidermal sample adhering to the adhesive tape, wherein the epidermal sample comprises a target protein;
- b) detecting the target protein to determine the level of target protein in the sample; and
- c) comparing the level of target protein to a normal or standard protein profile in similar tissue, wherein an altered level of the target protein is indicative of psoriasis, thereby diagnosing psoriasis in the subject.

154. (New) The method of claim 153, wherein the protein is selected TNF $\alpha$ , IFN $\gamma$ , CD2, IL-12B, Krt-16 and IL-23A.